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ABSTRACT

This paper presents some empirical findings on language acquisition and learning, relates them to other research studies on the same topics, and draws some conclusions about the conditions in which optimal language learning occurs. The paper's focus is on the acquisition of vocabulary and grammar. The debate about the role of incidental learning takes place at several levels --questions are whether children: learn new vocabulary best by direct instruction, word by word, or frequent immersion in meaningful language; learn the grammar of a language best by deliberate classification of parts of speech and analysis of model sentences or naturally by inference from authentic language input; learn to read best by systematic study of sound-symbol correspondences or regular exposure to a diet of interesting text; and learn to spell best by frequent rehearsal of words in lists or by wide and regular reading and writing. The paper contends that results of research conducted in New Zealand and the South Pacific may offer a new perspective for researchers and insights for practitioners. Evidence is impressive of students' ready acquisition of vocabulary and syntax while engaged in reading or listening to high-interest meaningful text in the target language, in studies from first and second language learners, both young children and adults. The paper concludes that although the complexity of the task of acquiring thousands of words and learning hundreds of grammatical rules is obvious to those who analyze the problem, most children cope with these challenges without fanfare. (Contains 4 tables of data and 36 references.) (NKA)

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Lessons From Some Empirical Findings on Language Acquisition

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CELA

National Research Center on English Learning & Achievement

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The Center, established in 1987, initially focused on the teaching and learning of literature. In March 1996, the Center expanded its focus to include the teaching and learning of English, both as a subject in its own right and as it is learned in other content areas. CELA's work is sponsored by the Office of Educational Research and Improvement (OERI), U.S. Department of Education, as part of the National Institute on Student Achievement, Curriculum, and Assessment.

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Foreword

Last June I had the honor of joining long-time colleague Warwick Elley as a presenter at the Second International Conference on Functional Literacy in Noordwijerhout, The Netherlands. Dr. Elley is Emeritus Professor of Education at the University of Canterbury in New Zealand, where for many years he has conducted research into the acquisition of literacy skills among first and second language learners. He has investigated, among other things, how both children and adults acquire and use elements of language such as vocabulary and grammar.

As Warwick and I compared our current research projects and some of the questions that drive CELA's research, I realized that his studies in the South Pacific and in New Zealand could say a lot to those of us in the United States who are concerned about how different language groups come to understand and use new vocabulary as well as rules and structures of grammar, whether in their primary language or when learning English as a Second Language. And so I invited (he'd say challenged) him to capture the results of some of his relevant work in a paper that we could share with others here in the States. The result is *In Praise of Incidental Learning: Lessons from Some Empirical Findings on Language Acquisition*, which we are proud and pleased to publish.

Thank you. Dr. Elley, for so generously sharing your knowledge with us.

Judith A. Langer
Director, CELA

IN PRAISE OF INCIDENTAL LEARNING

Lessons From Some Empirical Findings on Language Acquisition

Warwick B. Elley

"Language acquisition is one of the processes the brain does well."

F. Smith (1985)

Many writers on language have drawn attention to the incredible facility with which young humans acquire their native language — without formal lessons or textbooks, and in the presence of imperfect models. Indeed Noam Chomsky (1968) argues that language is biologically pre-programmed, a faculty of the brain which is independent of other cognitive structures. In his view we acquire languages because our language acquisition device is specially wired up to do so. So we learn the rules that underlie our ability to produce our native tongue when our brains are triggered by the appropriate language stimuli from the environment. While more recent work has shown how mothers tend to assist their children in their language development by simplifying their messages and emphasising key words (caretaker speech), Chomsky's point is still widely accepted, that young humans are remarkably adept at acquiring their native tongue.

Similarly, in the case of second language learning, Krashen (1989; 1993) has promoted the theory that language acquisition is relatively easy when students are exposed to a rich diet of "comprehensible input." While some aspects of a language may be learned by conscious, structured, deliberate learning, most is acquired incidentally, in authentic situations, while the learner is focusing on the message, rather than the words or sentence structures it contains. Optimal acquisition will occur if the learner is exposed to frequent input, just above their current level, but with sufficient cues to be comprehensible. In Krashen's view, second language learners can acquire the rules of the language rapidly and enjoyably, if we but give the brain the same conditions as those which helped them acquire the rules of the first language.

Such theories run counter to the traditional view that language learning is hard work. Most would claim, for instance, that a foreign language has to be consciously and intentionally learned, by means of rote memorization of vocabulary, copious grammar drills, frequent practice at reading graded passages, with accompanying questions, and lots of prose writing, with feedback. This process takes long, uninterrupted periods of hard intellectual effort. Nor do these optimistic theories find much favour amongst teachers of the first language. Children in most countries learn to read and write with special attention to form, rather than real messages. They study the sounds of words in isolation, and the spelling of words in lists, and the grammatical structure of artificial sentences, all in the hope of payoff in terms of better reading and writing. Is there really an easier way?

There are important issues at stake in this theoretical debate. For if there is an easy way to learn a language naturally, without laborious drills, then policy makers, textbook writers and language teachers could do much to make the lives of millions of students more enjoyable, and their efforts more productive, by adopting the principles that underlie the natural approach to language acquisition. Meanwhile, in the absence of crucial findings about the validity of the liberal viewpoint, teachers are frequently subject to rapid and arbitrary changes in policy, as one curriculum committee is succeeded by another, or as one ardent advocate gets the ear of the decision makers. Language acquisition is too important to be left to the whim of fashion.

Against this background, the purpose of this article is to present some empirical findings which the author and his colleagues have produced on these issues, to relate them to other research studies on the same topics, and to draw some conclusions about the conditions in which optimal language learning occurs. The main emphasis in this article will be on the acquisition of vocabulary and grammar.

Basic Issues at Stake

The debate about the role of incidental learning (as opposed to intentional, systematic learning of language) takes place at several levels, all with clear-cut practical implications:

1. Do pupils learn new vocabulary best by direct instruction, word by word, or incidentally, by frequent immersion in meaningful language?

2. Do children learn the grammar of a language best by deliberate classification of parts of speech and analysis of model sentences, or do they acquire it naturally by inference from authentic language input?

3. Do young children learn to read best by systematic study of sound-symbol correspondences and regular word study, or by regular exposure to a rich diet of meaningful, interesting text?

4. Do students learn to spell best by frequent rehearsal of words in lists, or by wide reading and regular writing?

On each of these issues, there is a growing body of empirical data in the United States and Britain, but the critical study, which provides definitive answers, is difficult to design, without introducing some artificiality into the tasks, or some ambiguity into the findings. Hence, the results of research conducted in New Zealand and the South Pacific are relevant, not because they are definitive, but because they may help to offer a new perspective for researchers, and some insights for practitioners.

Of course it is possible that incidental learning may be superior for some of these questions, and not for others. The brain may behave differently in mastering vocabulary than when learning syntax. Therefore, the issues will be treated separately.

How Do Students Learn New Vocabulary?

For many students, learning a language is, first and foremost, a matter of acquiring the meanings of many words. If we don't know the words, we can't understand the message. Fluent readers and writers do, in fact, have rich, well-elaborated lexicons. They know the meanings and functions of many words, and the conventional way in which they are used in the target language. There is ample research which shows high correlations between students' vocabulary knowledge and their general reading skills (e.g. Anderson & Freebody 1981). But the interpretation of these correlations is unclear. Do good readers acquire rich vocabularies because they read more, or does their reading improve when they acquire more vocabulary, or do brighter students more readily learn to read and to acquire more vocabulary, just because they are brighter? The critical study is not so easy to carry out.

How then do we learn new words? The main contenders for an answer to this question are:

1. By regular silent reading.
2. By regularly listening to stories read aloud.
3. By frequent conversation with mature language users.
4. By watching television.
5. By deliberate study of word lists and dictionaries.

Several studies have ruled out television as a major source of new words, as the range of vocabulary of most children's programs is so limited (e.g. Liberman 1986). Conversation with parents is a major factor in the preschool years (e.g. Wells 1985), but the vocabulary range of typical oral interchanges in the home is not great enough to extend children's word knowledge greatly in most cases, after they have learned to read. Deliberate study of word lists may help a few diligent learners, but recent estimates of the number of words acquired by typical school pupils is approximately 3000 words per year. Few pupils would visit a dictionary this often, and

few teachers would claim to teach more than a tenth of this number. So, by default, we are left with the conclusion that children learn most of their words by silent reading and by listening to others read to them. Is there any hard evidence to confirm this conclusion?

Evidence from Studies of Silent Reading

One study that bears on this issue is the Fiji Book Flood (Elley & Mangubhai 1981; 1983), which was carried out in 12 rural elementary schools at a point where the pupils were switching from the mother tongue to English as the medium of instruction. Eight of the schools were given 250 high-interest illustrated story books for their Grade 4 and 5 pupils to read, over a two year period, and their teachers were trained in methods that ensured that the pupils read or interacted with the books everyday, for 30 minutes. Half of the teachers used the Shared Reading approach, followed by activities which required the pupils to reread, act out, draw, talk about and rewrite the stories. The other half used the Sustained Silent Reading method. They promoted interest in the books by reading them aloud, then left the pupils to read them silently. The hypothesis was that the extensive reading of this intervention would improve the vocabulary (and other language skills) more than the audio lingual program, with restricted reading, which was followed by the matched control groups. After two years, this hypothesis was strongly supported. The pupils in the two enriched reading groups showed dramatic increases in their vocabulary scores, fully 10% higher than the control groups, on standardised tests of general vocabulary (See Elley & Mangubhai 1981). This evidence was promising, but the actual cause of the vocabulary gains cannot be definitely pin-pointed in this kind of study.

A second ESL study in Singapore, with a similar design, told a similar story. Over 500 children in Grades 1 to 3, who followed the Reading Acquisition and Language Program (REAP), read extensively from a large number of books every day. After three years, they had made significantly more gains in vocabulary (and other language skills) than matched control groups, on two different vocabulary tests (Elley 1991; Ng 1987). Once again, an enriched reading diet, pitched at the pupils' level of comprehensibility, appeared to produce better

vocabulary. However, it takes a more micro-level study to identify the precise cause of the gains.

Such studies have been carried out with both first and second language learners. For instance, Paul Nation (1982) of the English Language Institute, Wellington, New Zealand, reported a study by Saragi, Nation & Meister (1978) in which ESL college students were asked to read the novel *A Clockwork Orange* by Anthony Burgess. This novel contains a large number of words from a slang called "Nadsat." The students had no access to a Nadsat dictionary and presumed they were reading the book for its content and literary qualities. Without warning they were given a multiple-choice test of the slang vocabulary, shortly after reading the book — silently. The scores ranged from 50% to 96%, with a mean of 76%. Clearly the students had learned a great deal of new vocabulary, without direct instruction. Those who marvel at the facility with which young people learn slang, and swear words, in the absence of direct teaching, may not be surprised at this finding. Incidental learning is prominent in these cases.

Krashen also reports a series of studies with ESL adults in the United States, reading novels from the Sweet Valley High series. Asian students who became fascinated by these romances and read them for long hours showed impressive gains in their English vocabulary. (See Krashen 1994; Cho & Krashen 1995.)

Larger and more carefully controlled studies have been conducted on native English speakers. For instance, Nagy, Herman & Anderson (1985) investigated the role of incidental learning from context in acquiring new vocabulary when reading passages of 1000 words or more. Grade 8 students were asked to read one of two different passages and were subsequently tested for the meanings of 30 target words in each passage. Full "adult meaning" from encountering the word in a single authentic context was found in 8% of cases in open-ended tests, and in 12% in multiple choice tests. A sensitive approach to the measurement of word meanings enabled the researchers to conclude that partial understanding was obtained in many more cases. While the probability of learning a word meaning from a single encounter was statistically small, the authors argued that it implied a great deal of learning over extended periods of silent reading. The passages in question took only 10 minutes to read. The gains shown were quite sufficient

to account for at least a third of the 3000 words which are added to the average student's lexicon in one year.

Nagy et al. (1987) confirmed this finding in a similar study with different passages, and calculated that the better readers had a .26 to .42 probability of learning a word meaning from a single encounter in a meaningful context. Not all contexts are equal, of course, and the researchers showed that the likelihood of learning the unfamiliar words was greater when the context was informative, and the word repeated. Elaborating on these studies, Beck & McKeown (1991) have shown that the probability of vocabulary acquisition from silent reading is increased as the reader encounters the target word more often, and as the word meanings are elaborated in the surrounding context.

Thus, there is a substantial body of evidence, in first and second language studies, to support the case for clear-cut gains in vocabulary as a result of wide reading of natural text. When exposed to a number of unfamiliar words, in a comprehensible story or passage, the typical reader appears to make tentative hypotheses about meaning, based on the surrounding context, and is apparently able to retain this hypothesis until subsequent encounters allow for confirmation or revision. Much of our vocabulary development is a result of incidental learning from silent reading.

Story Reading Aloud

Benefits from silent reading inevitably favour the avid reader. Those who acquire more vocabulary this way are those who read well and read often. This is not good news for reluctant readers.

However, a second major source of vocabulary is derived from the practice of reading aloud to children, a practice that is not confined to eager readers. Nearly all children enjoy listening to stories, and there is growing evidence that there is a strong payoff in terms of increased vocabulary — not to mention the enjoyment and improved general knowledge and other linguistic and literary benefits.

First, it is clear that preschoolers who hear many bedtime stories move into reading more easily when they start formal instruction (e.g. Wells 1985; Sulzby & Teale 1991). More recently a number of school-based studies show that children learn the meanings of many new words just by listening to their teacher read aloud in class. The Fiji Book Flood, referred to above, showed that the children in the Shared Reading groups, who listened to many stories, produced impressive gains of 10% on a general vocabulary test of 30 words. However, it is not clear how much the story reading aloud contributed to these improvements. Therefore, the author carried out a series of small follow-up studies on particular books to investigate how much children were learning from listening to a single story.

In the first of these studies, with ESL pupils in the South Pacific, Elley (1989) found substantial increases in word knowledge following the reading of a single story, *Three Ducks Went Wandering*, to a class of Fiji Indian students (aged 11-12 years). The pupils were assessed on their understanding of target words from the story before, and after, three readings of the story, over the period of a week. Although there was no teacher explanation of the words, the mean gain in word meanings was approximately 20%. Table 1 shows the results for the six words selected for this study. All but one of the words showed improvement across the class, suggesting that much learning occurred incidentally, as the pupils listened.

Table 1

Vocabulary from Three Readings of *Three Ducks Went Wandering* by R. Roy (N = 32)

Target Word	Pretest % Correct	Post-Test % Correct	Gain % Difference
Grasshopper	55	79	24
Wandering	7	14	7
Soaring	28	55	27
Hawk	7	59	52
Gobbling	24	17	-7
Charging	35	55	20
MEAN	**26.0**	**46.5**	**20.5**

Similar studies were undertaken in two other South Pacific Islands by the author, using the same story. In the first, on the island of Niue, the story was read once only, with brief explanations of the target words, in passing. This time, the gains for the same target words were 26%. The reduction in the number of encounters was counterbalanced by the reader's explanations of the key words, at the point of interest in the story.

In the next study, with pupils of 11 to 12 years on the island of Kiribati, the story was again read three times, with brief definitions of the key words, and the gains increased to 38% on the same words. These studies were promising, as they supported the hypothesis that young children learning English as a second language can acquire much new vocabulary from stories read aloud to them, with and without some help from the teacher. However, the numbers in these micro-studies were small, and confined to one book. They needed confirmation in a larger more tightly controlled experiment.

Studies in the Pupils' Native Tongue

Soon afterwards, two further studies were conducted with New Zealand children, in their first language, while the author was based in Christchurch, a large South Island city. In the first, seven classes of seven-year-olds listened to the story *Gumdrop at Sea* by Val Biro (1983), read by their teacher, three times over the period of a week, without any explanation of the 20 target words (Elley 1989). Comparison of the mean pretest and post-test scores showed mean gains of 15% overall, and the benefits were similar for all classes and all levels of ability. Mean gains of over 30% were shown on some words, such as *regulated, parasol, muffled,* and *May Day*.

Subsequent analysis revealed that the words most readily acquired this way were those that occurred more than once in the story, that were surrounded by the most informative verbal contexts (as rated by the teachers), and that were illustrated in at least one picture. These are the same factors that influenced acquisition from silent reading.

In a further study with eight classes of eight-year-olds, the children listened to two different stories — *Rapscallion Jones* by James Marshall and *The White Crane* by Junko Morimoto — read under carefully controlled conditions. Half the teachers read the first story three times over seven days, without any explanation of the target words; the other half read that story three times to their pupils with brief explanations of the words, in passing. They were told what to say, or how to illustrate the meanings, without unduly interrupting the stories. For the second story, read aloud after the first phase was completed, the treatments were reversed. Control groups took the pre- and post-tests, without hearing the stories, and five additional words were inserted in the tests which were not included in the story.

Results for the children who listened to *Rapscallion Jones* without explanation of the key words showed a mean gain of 15% from pretest to post-test, almost identical to the pattern for the previous study with another book. Once again the pupils had learned much incidentally, just from listening to an interesting story, without comment. The results for the second book, *The White Crane*, which was a Japanese myth, were less impressive, with an overall mean gain of only 4.4%, when read without definitions. The interest level of this book was considerably lower for these children, and the level of redundancy in the language was apparently insufficient to help the acquisition process. Either the context was not comprehensible enough or the engagement of the pupils was not great enough for them to put forth the required effort.

The results for the pupils who listened to the high-interest story *Rapscallion Jones*, with the brief accompanying explanations of the target words, were most impressive. Here the average gains were nearly 40% (see Table 2). Once again the improvements shown by the *White Crane* group were smaller, at 17%, while the control groups, who did not hear the stories at all, showed less than 2% improvement.

As in the previous experiment, the largest gains in the unassisted learning groups were obtained with words which occurred often in the story, were illustrated with pictures, and which were surrounded by a helpful verbal context. Once again, the gains were just as strong amongst the weaker readers, and, four months later, a follow-up test showed virtually no forgetting of the target words.

Table 2

Vocabulary Learning from Three Readings of *Rapscallion Jones* (N=128)

Target Words	Group 1 Definitions Given			Group 2 Definitions Not Given		
	Pretest	Post-test	Gain	Pretest	Post-test	Gain
Roadster	42%	89%	47%	38%	70%	32%
Dingy	57	88	31	64	82	18
Lollong	40	76	36	39	54	15
Strewn	14	35	21	7	7	0
Debonair	21	74	53	43	46	3
Scheming	33	57	24	45	50	5
Summoned	15	47	32	32	41	9
Pressing engagements	44	88	44	39	64	25
In his prime	46	67	21	43	48	5
Ne'er do well	14	93	79	5	59	54
Spin	49	81	32	61	82	21
Outsmarted	53	79	26	61	68	7
Redistribute	0	40	40	7	4	-3
Lend an ear	72	85	13	64	88	24
Goner	43	82	39	52	66	14
Pizzazz	24	92	68	25	79	54
Reform	50	63	13	57	61	4
Rapscallion	22	86	64	34	39	5
Startling	19	72	53	34	29	-5
Overindulged	7	58	51	48	55	7
MEAN	**33**	**72**	**39**	**40**	**55**	**15**

Clearly, there was much incidental learning of vocabulary from context, as children listened to the story read aloud. Quite apart from the cultural and recreational reasons for listening to stories, there is empirical evidence here that the practice has important language benefits. Of course, the teacher's guidance proved an even more powerful factor in assisting the pupils to derive appropriate meanings, but it is important to distinguish this kind of learning — which takes place in context, at the point of interest — from the other kind of teacher directed instruction of preselected words, studied out of a natural context. When teachers, or parents, read stories, children usually focus on meaning. If the adult clarifies the meaning by briefly

explaining an unfamiliar word, the learning of that word is still an incidental acquisition, subordinate to the main aim of the classroom session. And it is an effective procedure, according to this study.

The evidence reviewed above clearly strengthens the case for incidental learning of vocabulary. Several other studies from the United States have confirmed that young children do learn new vocabulary from stories read aloud in the classroom (see M. Ruddell 1994). Do we acquire other language dimensions in the same way?

Do Children Learn Their Grammar Incidentally?

Generations of students have been taught the grammar of their language at school, directly and deliberately. Teachers spend countless hours defining and illustrating parts of speech and giving their pupils systematic exercises in parsing of sentences, on the assumption that this practice will heighten their awareness of the structures of good English prose and will improve their understanding and generation of language. Yet, many research investigations have shown that such deliberate teaching produces no measurable benefits in students' writing or editing of English. Research studies in England (Harris 1962), the United States (Hillocks 1986), New Zealand (Elley et al. 1976, 1979), and the Netherlands (Van de Gein 1991) all lead to this same conclusion, that systematic teaching of grammar has no value in improving student' writing.

For instance, in the New Zealand study (Elley et al. 1976, 1979), eight matched classes of 12-year-olds were taught by one of three approaches for three successive years. Those who studied traditional or transformational-generative grammar for three years, two periods a week, showed no benefits in reading, writing or editing, in comparison with the three classes who studied no grammar, but devoted the same amount of time to extra reading and writing. Moreover, the grammar groups finished with less positive attitudes toward English.

In the UK study, Harris (1962) examined the impact of traditional grammar on ten classes of 12- to 14-year-olds, in five schools, over two years, and found that the non-grammar groups achieved at higher levels of writing, on 20% of the criteria. They were writing more complex

sentences with fewer errors. Hillocks' (1986) review of 67 experimental studies designed to improve students' writing identified several effective methods, but the benefits for grammar instruction were consistently negative. Indeed, the overall effect size for grammar was -0.29.

There are, of course, other justifications for the teaching of grammar than for the improvement of writing, but in an increasingly crowded curriculum, the case for repeated doses of any topic that has no measurable benefits should be subject to close scrutiny. Why, then, is grammar unhelpful? How do students normally learn their grammar? Is it a largely incidental, unconscious process, unaffected by deliberate instruction?

Many linguists claim that a student's grammar consists of a network of rules, acquired incidentally by hypothesis and revision, as a result of regular exposure to the target language and the opportunity to use it (e.g. Hartwell 1985; Wong-Fillmore 1991; Cummins 1994; Krashen 1993). By the time children arrive at school, then, they have mastered most of the basic elements of the grammar of their first language. They have learned how to sequence their words in accordance with conventional usage. They have learned that adjectives normally precede nouns, although they have no labels to attach to such word categories. They know how to substitute pronouns for nouns and have acquired the ability to change verb tenses according to rule, long before they hear adults use such technical terms. It seems that we operate on the basis of many implicit rules, some of which have yet to be identified. (See Hartwell 1985.) For instance, few of us would have explicitly learned the rules that explain the conventional sequence of adjectives in the following sentence:

"The four young Australian breast-stroke swimmers were practising for their race."

Yet we would nearly all agree that this sequence is correct. How did we learn these rules, if not by frequent exposure to conventional language?

Is there any empirical evidence to support the incidental acquisition viewpoint? There are many studies with first language preschoolers that show how they generate their own rules to guide their emerging grammatical competence. For instance, when young children create verb forms like "gived" or "eated," or plural nouns like "sheeps" or "fishes," they are clearly not

reflecting anything that they have been taught. They must have produced hypotheses from the surrounding speech of their families about the rules to be followed when speaking grammatically.

Contrastive studies conducted with ESL learners are again useful sources of data. In the two-year Fiji Book Flood, cited above, elementary school pupils who were exposed to a large supply of illustrated story books learned their English grammar structures more effectively than the control groups, whose lessons focused on the systematic study of the specific structures that were tested in the project. Table 3 shows the mean percentage scores for pupils in the two Book Flood treatments (shared reading and silent reading) and the control groups (grammar structures) at the end of the two-year project (Elley & Mangubhai 1981). The grammar tests consisted of 30 items in which pupils had to complete sentences, using structures that were taught in the control group lessons.

Examples:
- When my brother grows up...
- Ram's age is the same...

Table 3
Mean Grammar Scores for Three Programs in the Fiji Book Flood

Grade Level	(1) Shared Book	(2) Silent Rdg	(3) Gram. Struct.	1+2 v 3 F	
Grade 5	38.60	40.80	25.25	27.5	**
Grade 6	43.90	42.13	30.37	24.7	**

** $p < .001$

The highly significant F tests ($p<.001$) show that these 281 ESL pupils, who spent most of their English periods either reading books or being read to, made much faster progress in their command of English grammatical structures than the 143 matched control group pupils, who were deliberately taught, and then practised these same structures in separate exercises. Furthermore, the enriched reading groups, in the same evaluation, wrote much better, more

coherent compositions ($F = 25.00$, $p < .001$), and made fewer mechanical or grammatical errors. Further details are given in Elley & Mangubhai (1981, 1983).

More recent supportive studies have been reported by Yon Ok Lee et al. (1995), with ESL college students in the United States, and by Wai-King Tsang (1996), with high-school students in Hong-Kong. In the first study, 49 Asian ESL college students took two tests which probed their command of restrictive relative clauses, a common problem with such students. The amount of reported pleasure reading in English correlated well (0.53) with their competence in this grammar structure, much higher than length of residence or formal study ($r = < 0.2$), for instance. Such structures are apparently acquired by wide reading, not by direct teaching in English lessons, according to the authors.

The Hong Kong study was designed to compare the effects of three English programs on the writing skills of 140 high-school ESL students. After only 24 weeks, the reading-enriched group, who had read and reviewed eight books (mostly simplified English classics), wrote better essays, with fewer errors of language use (constructions, agreement in tense and number, word order, etc.) than a group whose members wrote essays, with teacher feedback, each week, or a control group who had no extra reading or writing. Once again, the group that read widely appeared to learn more grammar structures incidentally.

How effective is grammar teaching for ESL Pupils?

A further study was conducted by the author of this article, to determine whether deliberate teaching of grammar structures to ESL elementary pupils has any impact on their ability to use those structures in their reading. Elley (1982) identified 24 grammar structures which were taught and practised systematically in the Grade 6 curriculum in all Fiji schools. These structures were placed in the context of simple sentences and paragraphs, and presented to be read to a cross-section of 100 Grade 5 pupils (aged 11-12 years), and 65 Grade 7 pupils (aged 13-14 years). The grammatical structures tested included verb tenses, reflexives, passive voice, comparatives, adverbs, time clauses, gerunds, connectives, and the like. If there was validity to

the locally accepted assumption that pupils should master their grammatical structures before reading them in books, then it was predicted that the Grade 5 pupils would be unable to read the 24 structures with understanding, while the Grade 7 students would be able to. To ensure that the language context of the target sentences was easy enough for the pupils to understand, a parallel set of sentences was devised, conveying the same meanings, but using only familiar structures, and was given to a random half of the pupils tested.

For example, two of the sentences used to check understanding of the passive voice were as follows:

a) Unfamiliar structure: The children next door were frightened by the little dogs.

OR

b) Familiar structure: The little dogs frightened the children next door.

Comprehension questions for both sentences were:

(1) Who was afraid?

(2) Who frightened them?

The results of this exercise were very revealing. Of the 24 structures designed to be taught in Grade 6, 18 were found to be well understood already by two-thirds or more of the Grade 5 pupils, taking the normal program, a year before they were taught them. The mean score for these 18 unfamiliar structures was 78.33 %, only 5 % less than the mean for the corresponding familiar structures. However, six of the untaught structures were not well understood. For Grade 5 pupils, they ranged from 8% correct to 53% (Mean = 23%), while the corresponding familiar structures were well understood (Mean = 76%). Table 4 presents these difficult structures, with the percentage correct for Grades 5 and 7 pupils.

Table 4
Grade 6 Grammar Structures Not Well Understood, Fiji ESL Pupils

	Grade 5		Grade 7	
	Unfamiliar	Familiar	Unfamiliar	Familiar
Neither Peni nor Subhas saw...	53%	96%	65%	100%
Ann hasn't been in class since...	34	78	48	84
We have hardly any bananas...	13	39	13	68
All the children but Sam have...	13	97	5	91
It's too far for him to...	8	66	18	83
A mile further than...	16	82	18	87
MEAN	23%	76%	28%	86%

Clearly, the pattern is much the same for both grade levels. Deliberate teaching and drilling of these grammar items had virtually no impact on the pupils' ability to comprehend them. And if they cannot read them with understanding in a simple context, they will be unable to use them in composing new text.

In short, the evidence from Fiji elementary schools cited above supports the view that children learn the grammar of a language more effectively from frequent exposure to natural, interesting prose. Apparently, children's language development is largely unaffected by deliberate teaching of selected grammatical structures. In other words, children learning a second language appear to pick up their grammar incidentally, while engaged in reading appropriate text.

Conclusion

The evidence on students' ready acquisition of vocabulary and syntax while engaged in reading or listening to high-interest meaningful text in the target language is impressive. The studies come from first and second language learners, from young children and adults, from industrialised countries and Third World countries. The enormous complexity of the task of acquiring thousands of words and learning hundreds of grammatical rules is obvious to those who analyse the problem. Yet most children cope with these challenges without fanfare, provided they are given the opportunity and encouragement to engage with high-interest print, frequently. There are many writers who claim that children learn their spelling and punctuation and reading skills the same way — while interacting with meaningful, comprehensible prose.

Frank Smith, for instance, argues that children learn to spell from wide reading and regular writing. He sees writing practice as helpful, but only because it provides the reason for learning to spell from one's reading (Smith 1982, p. 187). Krashen (1993) has collected a number of studies from the United States which show that spelling is best learned by reading, and that systematic word list study of spelling, out of context, is ineffective. In some cases, "more instruction appears to result in less spelling efficiency" (p. 452). Once again, the evidence needs building on if the traditional beliefs of generations of teachers are to be seriously challenged. As Smith (1982) points out, the study of spelling words is most likely to bear fruit if it occurs at the point of need. Moreover, children who write often start to look at words in their reading with an eye to spelling them more readily when they next require them.

As for learning to read, there is a substantial body of evidence that ESL children learn to read best by engaging in regular reading of texts that are comprehensible enough to stretch the reader. The Fiji Book Flood, cited above, showed that Fiji children progressed in their reading comprehension at twice the normal rate, when engaged in daily reading. The study has been repeated in Singapore (Elley 1991, Ng 1987), in Nuie (Elley 1980) and in Brunei (Ng 1995). In Sri Lanka, a recent Book Flood study in 20 small disadvantaged schools showed that Grade 4 and 5 pupils progressed in reading at three times the normal rate, as a result of an enriched reading program. Comparable progress was shown in writing and listening skills (Elley &

Foster 1996). Likewise, a series of studies in black South African schools has shown large improvements in reading and writing on samples of over 1000 pupils who have followed the extended reading programs developed by READ Education Trust, a non-government organisation based in Johannesburg (Le Roux & Schollar 1996). Further studies of the benefits of reading aloud to children in other countries are contained in Elley (1991). All have shown the powerful potential of engagement in high-interest print. The learning is gradual, but it is enjoyable and more productive than less interesting approaches normally adopted in language teaching classes. There is much to be said for incidental learning of languages from interacting with a good book.

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